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EXAMINER

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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/527,721
Filing Date: October 20, 2005
Appellant(s): BRODT ET AL.

Stephan A. Pendorf
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 4/28/2009 appealing from the Office action mailed 10/28/2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,918,224	Tjoelker et al	07-2005
5,669,992	Bronsema et al	09-1993

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

Claim 1, 6, 10, and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Tjoelker et al (US 6,918,224 B2, thereafter US'224).

Regarding claims 1 and 11, US'224 teaches a process for forming a vehicle component comprising the steps of cold forming unhardened steel into a workpiece having mounting surfaces; selectively fixturing the mounting surfaces; static induction heating the workpiece with lengthwise surface eddy currents on selected portions; followed by quenching of the fixtured heated workpiece to form strengthened portions; and unfixturing the resulting components (Abstract of US'224). US'224 teaches a suitable material for the workpiece is a hardenable steel, i.e. quenchable steel (Col.4, lines 18-19 of US'224), which reads on the hot-workable steel as recited in the step (I) of the instant claim 1. US'224 teaches initially forcefully cold forming a workpiece, such as by stamping and/or rolling techniques, into the desired configuration (Col.4, lines 14-26 of US'224), which reads on the limitation of cold forming a part blank having a three-dimensional shape and outer contour corresponding approximately to that of the finished product from the sheet

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blank as recited in the step (II)-(III) of the instant claim 1. Induction heating the workpiece in selectively fixtures as taught by US'224 reads on the limitations of heating and press-hardening in hot-forming tool as recited in the process (IV) of the instant claim 1. The vehicle component application taught by US'224 (abstract of US'224) reads on the application of motor vehicle body part in claim 11.

Regarding the steps (V) of final shaping the heated product of step (IV) and rapidly cooling the trimmed part blank in a hot-forming tool to set the material structure in the insatnt claim 1, the clamping device of US'224 is one kind of hot-forming tools because it limits the motion of the working pieces; and the function of the clamping devices would lead to the press hardening on the working pieces when the temperature increases and decreases as recited in the instant claim 1. US'224 teaches sufficiently induction heating the target to a pre-selected temperature, then quenching to obtain desired hardening effect (Col.4, line 54 to Col.5, line 20 of US'224), which reads on the heating and rapid cooling limitations in the instant claim. US'224 further teaches during cooling the coolant is rapidly and suddenly applied through nozzles and directed onto the impact beam to quench the same while it is still fixtured or retained in fixture (Col.5, lines 11 to 20 of

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US'224), which reads on the limitation of rapidly cooling the blank in a hot-forming tool as recited in the instant claim.

Regarding claim 6, US'244 teaches the induction heat treating the steel results in achieving ultra high tensile strength, which means the alloy of US'244 is an air-hardened steel alloy.

Regarding claims 10, US'224 teaches using induction heat to treat the steel (Fig. 1-5 and Col.4, line 53 to col.5, line 20 of US'224).

Claim Rejections - 35 USC § 103

Claims 2-4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over US'224 as applied on claim 1, and further in view of term definition for "stamping" on Wikipedia (www.wikipedia.org).

Regarding claims 2-4 and 12, US'224 teaches the workpiece is forcefully cold formed at substantially ambient temperature from non-hardened steel, such as by stamping and/or rolling techniques of conventional type, into the desired configuration (Col.4, lines 14-25 of US'224). The term definition for "Stamping" in Wikipedia is: "Stamping is a metalworking process by which sheet metal strips are punched using a press tool which is loaded on a machine press or stamping press to form the sheet

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into a desired shape... and the most common stamping operation are: piercing; fine blanking; bending; forming; coining; progressive stamping; deep drawing; embossing; and extrusion". Because stamping includes drawing (or deep drawing) method as recited in the instant claims, therefore, it would have been obvious to one skilled in the art to choose drawing (as claimed in the instant claim 12) or deep drawing (as claimed in the instant claim 2) to cold forming the workpiece because US'224 discloses the same utility throughout the disclosed stamping. Because stamping also includes extrusion technique, which is also known as a mechanical cutting (or trimming) method, therefore, it would have been obvious to one skilled in the art to choose trimming technique for cold forming as recited in the instant claims 3-4 in the process of US'244 in order to obtain the desired configuration (Col.4, lines 14-25 of US'224).

Claims 5 and 7-9, are rejected under 35 U.S.C. 103(a) as being unpatentable over US'224 as applied on claim 1, and further in view of Bronsema et al (US 5,669,992, thereafter US'992)

Regarding claim 5, US'224 teaches using induction heat to treat the steel and quenching in quench tank unit to obtain desired hardening effect (Col.5, lines 9-20 of US'224). But

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US'224 does not specify being cooled with brine. However, it is within the ordinary skill in the art to choose different quenching solutions for getting desired hardening effects, which is evidenced by US'992. US992 teaches a method for manufacturing an automobile bumper beam (Col.1, lines 4-7 of US'992). US'992 teaches induction hardening method (Col.3, lines 25-46 of US'992). US'992 teaches using water solution containing various salts as quenching solution. Therefore, it would have been obvious to one skilled in the art to choose brine as a quenching solution as recited in the instant claim in the process of US'224 in order to obtain desired hardening effect as demonstrated in US'992.

Regarding claims 7 and 8, US'992 teaches: "The atmosphere chamber exposes the steel S to only inert gas during these functions to prevent oxidation and the formation of scales on the steel surface so that the bumper beam can be later painted, if desired." (Col.3, lines 30-34 of US'992).

Regarding claim 9, US'224 teaches using induction heat to treat the steel (Fig. 1-5 and Col.4, line 53 to col.5, line 20 of US'224), US'992 teaches induction heating furnace and US'922 teaches the bumper beam is treated continuously (Fig.1-3 and

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Col.3, lines 25-47 of US'992). Therefore, it reads on the claimed features.

(10) Response to Argument

The appellant's arguments filed on 04/28/2009 have been fully considered but they are not persuasive.

In the appeal brief, the Appellant argues:

1) regarding claims 1, 6, 10, and 11, Tjoelker et al (US'224) do not teach steps (III)-(V). More specifically, US'224 merely teaches (a) cold forming to final shape in a single step, followed by (b) heat treatment (not heat forming);

2) US'224 nowhere teaches first cold forming to a near net shape; followed by trimming; followed by final shaping and also hardened by rapid cooling;

3) regarding claims 2-4 and 12, Tjoelker et al (US'224) teach cold forming, Tjoelker et al (US'224) teach against hot press forming. Wikipedia does not come close to the present invention since there remains an absence of teaching of hot press forming. US'224 does not produce a final heat-treated shaped part with high dimensional accuracy;

4) regarding claims 5, and 7-9, Bronsema et al nowhere teach hot press forming as required in the present claims 1 and 13, thus the combination of references does not come close to the present invention. The cited references do not teach use of a hot forming tool for press hardening as claimed in the instant invention.

In response,

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Regarding the arguments 1) and 4), the Examiner disagrees with the Appellant's arguments. Tjoelker et al (US'224) teaches that prior to heat treatment, the cold formed beam workpiece is fixed in a suitable clamping device and the clamping elements allow the respective flange to move only longitudinally, but not vertically or torsionally, to accommodate beam expansion and contraction due to temperature increases and decreases during the induction heat treating process, but prevent significant vertical or torsional distortion (Col.4, lines 27 to 52 of US'224). The clamping device of US'224 is one kind of hot-forming tools because it limits the motion of the working pieces; and the function of clamping devices will lead to the press hardening on the working pieces when the temperature increases and decreases as recited in the instant claim 1 because the clamping device has limited the heat-expansion of the heated workpiece. The Examiner further notes that there are no limitations to press-harden the whole workpiece as assumed in the instant arguments. It is a common knowledge that heating will release the press-hardening effect of metallic materials and quench hardening will decide the final hardness of the metallic article.

Regarding the arguments 2 and 3, US'224 does not only teach cold forming, induction heating and quenching, US'224 teaches the workpiece is fixed in a suitable clamping device and the clamping elements. The function of clamping devices will lead to the hardening on the working pieces when the temperature increases and decreases as recited in the instant claim 1. The examiner further notes that the limitation of "producing a final heat-treated shaped part with high dimensional accuracy" as argued in the argument 3 is not claimed in the instant claims. As discussed in the rejection for

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the instant claim1, US'224 teaches cold formed, such as by stamping and/or rolling techniques into the desired configuration (Col.4, lines 14-26 of US'224), which reads on the limitation of cold forming a part blank having a three-dimensional shape and outer contour corresponding approximately to that of the finished product from the sheet blank as recited in the instant claim 1.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Jie Yang/

Jie Yang, Art Unit 1793

Conferees:

/Roy King/

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